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ABSTRACT

To determine the relationship between age and risk taking for community college students, 74 male and 72 female students, ranging from 18-79 years of age, took a vocabulary test in which six "nonsense" items were interspersed among 54 legitimate items (following Slakter's procedure). Test instructions explained a penalty would be levied for incorrect responses and that no change in score would occur for omitted items. It was hypothesized that any response on "nonsense" items would be an indicator of risk taking behavior. Results of correlational analyses indicated that the proportion of linear risk taking variance explained by age and sex was low, but that a moderate proportion of nonlinear variance was associated with age differentiation. By comparing data with those reported in a previous study of New York state students, an age function for risk taking on objective examinations across a large life-span proportion was constructed. Comparison findings showed that high school students had higher risk scores than mature adults, who, in turn, had higher risk scores relative to young and middle-aged adults, suggesting the possibility of a nonlinear age function for risk taking from the second to the seventh decade of life. A bibliography is included. (TR)

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Risk Taking in Community College Students: Age and Sex Differences

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Risk Taking in Community College Students: Age and Sex Differences

Abstract

This investigation was designed to determine the relation between age and risk taking for male and female community college students. Scores on risk taking were obtained using a multiple choice procedure suggested by Slakter (12). Results of correlational analyses indicated that the proportion of linear risk taking variance explained by age and sex was low (approximately .01) but that a moderate proportion (.37) of nonlinear variance was associated with variation in age. High school students evidenced higher risk scores than mature adults, who, in turn, evidenced higher risk scores relative to young and middle-aged adults, suggesting the possibility of a nonlinear age function for risk taking from the second the seventh decade of life.

Educators (10) have called upon institutions of higher education to move decisively into the area of education for adults of all ages at all levels of instruction. Despite the increase in enrollments of middle-aged and older adults in institutions of higher education (1), educational researchers, in general, have conducted few studies of adult age differences in variables related to the instructional and evaluation processes. Specifically although risk taking on objective examinations has been shown to be positively correlated with test achievement (13, 14), a review of the literature revealed no published research on its relation to age differences in adulthood.

In studying the measurement of risk taking on objective examinations (RTOOE), Slakter (12) defined RTOOE as guessing when the examinee is aware that there is a penalty for incorrect responses. In a cross-sectional study of age and sex differences in RTOOE among American children and adolescents, Slakter, Koehler, Hampton, and Grennell (17) reported that age was inversely related to RTOOE. In a longitudinal follow up (16), Slakter and his collegues found (1) a significant decrease in mean RTOOE scores from the sixth to the eighth grade, from the seventh to the ninth grade, and from the eighth to the tenth grade; (2) a significant decrease in mean RTOOE scores only for males from the fifth to the seventh grade; and (3) no significant difference in mean RTOOE scores from the ninth to the eleventh grade. They concluded the mean RTOOE scores for children decrease as they grow older until age 14-15, when they appear to level off, at least for two years.

Another finding reported by Slakter et al (17) in their cross-sectional study was that sex explained only a minimal amount of the variance in RTOOE (approximately .01). In studies on college students, Slakter (12, 15) also

found no consistent sex differences in RTOOE scores.

Although, as previously mentioned, no published studies specifically examining adult age and sex differences in RTOOE scores were found in a literature review, there have been a number of studies investigating the relation between scores on other risk taking measures and adult age and sex (7). Few consistent sex differences in risk taking scores have been observed with either young adult or elderly subjects (2, 9). With regard to differences in risk taking scores between young and elderly age groups, the empirical evidence is more equivocal. Recent research (8) suggests that age differences are a function of situational parameters such as response options, payoff structures, and probabilities of success.

In the present paper, the issue of whether RTOOE among community college students is influenced by age and by sex was examined in a cross-sectional study. Further, in accordance with the exhortation of Kogan and Wallach (5) to ascertain whether the age function for risk taking across adulthood is linear, the nonlinear proportion of variance in RTOOE scores explained by age using a sample of young, middle-aged and mature adults was computed. Finally, in an exploratory vein, the data from this study and from a study by Slakter et al. (17) were combined to construct an "artificial" age function for RTOOE ranging from the second to the seventh decade of life.

Method

Subjects

Subjects for the study included 74 male and 72 female students enrolled in credit courses at a community college located in the metropolitan area of Phoenix, Arizona. Subjects ranged in age from 18 to 79 years of age (M=45.82, SD=19.01) and in education from 12 to 19 years of schooling (M=13.73, SD=2.48).

Instrument

The instrument consisted of 60, four-alternative, multiple choice items. Fifty-four items were taken from an item bank used previously by Okun et al.(9) in research on aging. Following Slaktor's (12) procedure, six "nonsense" items were interspersed among the 54 "legitimate" items. The following is an example of a RTOOE item used in the vocabulary test:

Vairn

a) rogue, b) fur, c) agent, d) farewell

Since "vairn" is not meaningful, the item had no answer. The instructions explained that a penalty would be levied for incorrect responses and that no change in score would occur for omitted items. Hence any response (i.e., rogue, fur, agent, or farewell) was assumed to be an indicator of risk taking behavior. The risk score was the proportion of nonsense items attempted. Possible scores on this index ranged from zero to one.

Procedure

Subjects were administered the vocabulary test by the investigators during regular classroom meeting periods. The instructions, adapted from those employed by Crocker and Benson (4), stated:

> This study deals with the ability of people to comprehend the meaning of words. This ability has been found to be the best single indicator of general intelligence. It's to your advantage, then, to do your best to show how capable you are, how bright you are in relation to your classmates. Do your best, for we will inform you of how your score compares with those of other participants.
>
> Before you start working on this form of the task, let me explain how we are going to compute your total test score. You will receive one point for each correct answer. You will receive no points for each item which you do not answer. You will LOSE one-third point for each item which you answer incorrectly. Your total test score is determined

> jointly by the number of items you answer correctly and the number of items you do not answer as opposed to answering incorrectly. Remember, your objective in working on this task is to achieve the highest total test score that you can. If you have any questions, please raise your hand. We will be glad to assist you.

Subjects were then shown a table depicting the tabulation of a total test score for a hypothetical subject. After examining the table, subjects worked on the vocabulary test.

Results

The KR-20 reliability for the RTOOE measure was .85. Hence, the RTOOE measure appeared to be adequately reliable, with the value obtained in the present study consistent with prior research (17).

A multiple regression analysis was conducted in order to determine the extent to which age, sex, and the age by sex interaction accounted for RTOOE scores. Specifically, a hierarchical regression equation was generated in which the order of entry was as follows: (1) age, (2) sex, (3) age by sex interaction. The predictors, as a set, accounted for only one per cent of the variance (R^2=.01) in RTOOE scores [F (3, 142)=.72]. The zero order correlations between RTOOE scores and (1) age and (2) sex were .04 and .07, respectively.

A scatter diagram was constructed to ascertain, in a preliminary manner, whether the relation between RTOOE scores and age was nonlinear. Inspection of the scatter diagram indicated that it would be worthwhile to determine the proportion of nonlinear variance in RTOOE scores accounted for by age. Accordingly, the proportion of nonlinear variance in RTOOE scores explained by age was computed by subtracting R^2 from eta squared (6, p. 261). The results indicated that age explained 37 per cent of the nonlinear proportion of variance in RTOOE scores.

Discussion

The results of the present study indicate that there were nonsignificant age and sex differences in RTOOE scores among the community college students. In addition, the age function for RTOOE scores across the adult life span appears to be nonlinear. By combining data reported in the study of New York State students by Slakter et al. (17) with data from the present study, it is possible to construct an age function for RTOOE across a very large proportion of the life span. Clearly, the age function reported here must be interpreted with appropriate care as it was constructed from two studies employing different test instruments, conducted at different points in time, and using samples of vastly unequal sizes, drawn from different populations. Keeping this caveat in mind, note the nonlinear relation between age and RTOOE scores across the life span depicted in Table 1. These data suggest that RTOOE scores were highest among the youngest age group, decreased with age until young adulthood, then leveled off, and tended to increase again in maturity.

An examination of the data in Table 1 indicates, that only during middle-age do males and females appear to have differential RTOOE scores. The tendency of middle-aged women to be conservative in their risk taking on examinations is consistent with the observation made by Brandenburg (3) that middle-aged women attending institutions of higher education are apprehensive about their academic competency and rusty with regard to their test-taking skills.

Table 1.-- Mean Risk Score for Present Study and Slakter et al.'s (17) Study (Sample Size in Parentheses)

Sex	Age Group				
	Adolescents[a] (13-17 yrs. old)	Young Adults[b] (17-31 yrs. old)	Middle-Aged Adults[b] (32-60 yrs. old)	Mature Adults[b] (61-79 yrs. old)	Total
Males	.71	.53	.61	.58	.68
	(325)	(34)	(22)	(18)	
Females	.70	.45	.36	.60	.66
	(361)	(15)	(26)	(31)	
Total	.71	.51	.47	.59	

[a]From Slakter et al. (17, p. 67) study

[b]From present study

Obviously, it would be premature to offer a definitive interpretation of the age and sex functions of RTOOE across the life span from the retrospective, spliced analysis reported here. Additional research conducted in a prospective fashion is warranted. Future research will require samples drawn from different geographical regions (17) which include both pre- and post-secondary students (11).

Notes

1. A version of this paper was presented at the 1978 AERA meetings in Toronto, Canada.

2. This paper was supported by a grant-in-aid from Arizona State University and by NIH Research Grant 1 R23 AG 0078-01 from the NIA.

3. We thank Dr. Richard Elton for his cordial cooperation in the conduct of this study.

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